



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|------------------------|---------------------|------------------|
| 10/747,725 | 12/29/2003 | Patricia Chapman Irwin | 134756-1 | 6638 |
| 23413 | 7590 | 12/30/2005 | EXAMINER | |
| CANTOR COLBURN, LLP 55 GRIFFIN ROAD SOUTH BLOOMFIELD, CT 06002 | | | JACKSON, MONIQUE R | |
| | | | ART UNIT | PAPER NUMBER |

1773

DATE MAILED: 12/30/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/747,725

Applicant(s)

IRWIN ET AL.

Examiner

Monique R. Jackson

Art Unit

1773

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 October 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13, 15, 16 and 21-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13, 15, 16 and 21-32 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. The amendment filed 10/10/05 has been entered. Claims 14 and 17-20 have been canceled. New claims 28-32 have been added. Claims 1-13, 15-16 and 21-32 are pending in the application.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 102

3. Claims 1-5, 7, 9-13, 15, 24, 26 and 27, and new claims 28-31 are rejected under 35 U.S.C. 102(a) and/or (e) as being anticipated by Igarashi et al (USPN 6,800,804) for the reasons recited in the prior office action and restated below.

Igarashi et al teach an epoxy resin composition used for encapsulating a semiconductor element mounted on a wiring circuit wherein the resin composition provides an encapsulating material with superior electric insulation properties (Abstract; Col. 2, lines 30-34.) The encapsulating material comprises A) an epoxy resin, B) a phenolic resin, C) a curing accelerator, and D) at least of (d1) conductive particles whose surfaces are subjected to coating treatment with an insulating inorganic material **or (d2) magnetic particles** whose surfaces are subjected to a coating treatment with an insulating inorganic material (Abstract; Col. 2, lines 40-53.) The particles have a maximum particle size of not larger than 200 microns, and an average particle size in the range of 0.5-50 microns (**500nm-5000nm.**) (Col. 4, lines 36-39) and include various metal powders or **magnetic powders** including hematite, magnetite, and various ferrites expressed by a general formula **MFe₂O₄ or MO_nFe₂O₃** wherein M designates a bivalent metal particle including Mn, Co, Ni, Cu, Zn, Ba, Mg, etc. (Col. 4, lines 19-30.) Igarashi et al teach

Art Unit: 1773

examples utilizing Ni-Zn-based ferrite powder (Examples.) Igarashi et al further teach that the insulating inorganic material used in the surface treatment include **silica fine powder or alumina fine powder having an average primary particle size of 1-1,000nm, preferably silica fine powder whose average primary particle size is 10-500nm** (Col. 4, lines 44-55.)

Igarashi et al teach that the amount of component D) is preferably set in a range of 10-90 weight% of the total weight of the resin composition (Col. 5, lines 10-13) and the content of C) is preferably 0.5-10 parts by weight per 100 parts of the phenolic resin (Col. 4, lines 8-11) (*hence overlapping the instantly claimed thermosetting weight percent.*) The composition may further contain a silane coupling agent such as the alkoxysilanes at Col. 6, lines 8-10, silicone compound stress reduction agents such as side-chain ethylene-glycol type dimethylsiloxane (*reads on instant claims 5 and 7*), and various additives (Col. 5, line 61-Col. 6, line 11; Examples.) Igarashi et al teach that the above composition is formed into an encapsulating layer by low-pressure transfer molding to a thickness in the range of 0.1-5mm, with examples post-hardened at a temperature of 175°C (Col. 7, line 8-Col. 8, line 2; Examples.)

Claim Rejections - 35 USC § 103

4. Claims 6, 8, 16, 21-23, 25, and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Igarashi et al. The teachings of Igarashi et al are discussed above. Though Igarashi et al teach that various ferrites expressed by a general formula MFe_2O_4 or $MO_nFe_2O_3$ wherein M designates a bivalent metal particle including Mn, Co, Ni, Cu, Zn, Ba, Mg, etc. may be utilized in the coating composition with examples specifically utilizing Ni-Zn-based ferrite powder, Igarashi et al do not specifically teach that the ferrite particles have the formula as instantly claimed. However, one having ordinary skill in the art at the time of the invention

Art Unit: 1773

would have been motivated to utilize a Ni-Zn ferrite powder as taught by Igarashi et al and to determine the optimum amounts of each metal to include in the ferrite powder wherein equal amounts of Ni and Zn would have been obvious to one skilled in the art at the time of the invention. With regards to Claims 6 and 8, though Igarashi et al teach that the thermosetting composition may further comprise the silicone compound as a stress reducing agent, Igarashi et al do not specifically teach the molecular weight of the silicone compound as instantly claimed, however, considering it is well established in the art that molecular weight is a known result-effective variable affecting the mechanical properties of the resulting cured product, one having ordinary skill in the art at the time of the invention would have been motivated to determine the optimum molecular weight to provide the desired stress reducing properties to the composition. With respect to Claims 21-23, though Igarashi et al teach that the encapsulating layer may have a thickness that overlaps the instantly claimed range and provides superior insulation properties, Igarashi et al does not specifically teach the thickness and electric breakdown range as instantly claimed. However, considering the electric breakdown is directly related to the thickness of the insulation layer, one having ordinary skill in the art at the time of the invention would have been motivated to utilize routine experimentation to determine the optimum thickness of the insulation layer to provide the desired electric breakdown based on the intended end use of the insulation layer, wherein Igarashi et al provide a suggestion to utilize thickness values within the instantly claimed range. Lastly, with regards to instant claim 25, though Igarashi et al teach that the insulating layer is provided over the electrical component by a molding process, coating methods as instantly claimed are functionally equivalent methods in the art for providing insulating layers

Art Unit: 1773

on an electrical component and would have been obvious to one skilled in the art at the time of the invention.

Response to Arguments

5. Applicant's arguments filed 10/10/05 have been considered but are not persuasive and/or moot in view of the new ground(s) of rejection. With regards to Igarashi et al, the Applicant argues that Igarashi et al allegedly does not teach particles consisting essentially of the inorganic particles as instantly claimed considering Igarashi's particles are conductive or magnetic particles coated with the inorganic material. However, the Examiner first notes that the transitional term "consisting essentially of" does not exclude the other materials taught by Igarashi et al as part of the particles. Further, as discussed above, it is noted that the magnetic core particles taught by Igarashi et al do in fact read upon the instantly claimed inorganic particles. Hence, the Examiner maintains her position that Igarashi et al anticipates the claimed invention.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Monique R. Jackson whose telephone number is 571-272-1508. The examiner can normally be reached on Mondays-Thursdays, 8:00AM-4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carol Chaney can be reached on 571-272-1284. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1773

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Monique R. Jackson
Primary Examiner
Technology Center 1700
December 27, 2005